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# Sporadic Cases of *Yersinia pseudotuberculosis* Serotype 5 Infection in Shodo Island, Kagawa Prefecture

Chizuko Sunahara*, Yasuyo Yamanaka and Shigeki Yamanishi

*Kagawa Prefectural Institute of Public Health*
*Asahi 5-3-105, Takamatsu, Kagawa 760-0065, Japan*

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Genus *Yersinia* consists of 11 species including human pathogens, *Y. pestis*, *Y. enterocolitica*, and *Y. pseudotuberculosis*.

*Y. pseudotuberculosis* is now known as the causative agent of Izumi fever whose etiology remained long unknown, and some cases of *Y. pseudotuberculosis* infection satisfy the criteria of Kawasaki syndrome (1). The route of infection is considered oral, such as via ingestion of water contaminated by the excrement of infected wild animals or ingestion of raw vegetables washed by such contaminated water (2).

Since the outbreak in Okayama Prefecture in 1981, cases of *Y. pseudotuberculosis* have been reported sporadically but remain relatively rare. A recent known outbreak was that caused by serotype 5a was reported in Aomori Prefecture in 1991.

In Kagawa Prefecture, 5 cases were reported in 1987 and 4 cases in 1988. The commonest was serotype 5 (9 cases) followed by serotype 2 (3 cases) and serotypes 1 and 4 (1 case each). No cases were reported in 1989-1997. In the spring of 1998, however, an outbreak took place in Shodo Island after a long period of absence. This report describes the epidemiological study of this outbreak.

Three cases of *Y. pseudotuberculosis* infection were reported late in March 1998. They were two 10-year-old girls (patients A and B) who both became sick on 20 March, and an 8-year-old boy (patient C) who became sick on 31 March. The clinical picture consisted of fever followed by rash, such as facial erythema, rashes on palms, plantae, axillae, hypogastric region, inguinal region, etc., or erythema nodosum in elbows. Though patient A experienced only slight abdominal pain, patients B and C had pain in the right hypogastrium which resembled that of appendicitis. Patients B and C experienced renal failure in addition but dialysis was not required.

The Figure shows the location of the patients' residences and the places from which water samples were collected for bacteriological examination.

Patients A and C were neighbors and patient B took water from the well in patient A's residence before the onset of illness. Patient C played with water from the well in his own residence before his illness.

*Y. pseudotuberculosis* 5b was isolated from all the three patients and also from wells of both A's and C's residences (on March 27 and on April 10, respectively) and from the water collected from the T river upstream of both patients' residences (on April 10). These isolates were all *virF*$^{+}$*inv*$^{+}$ and had an identical pattern in pulsed-field gel electrophoresis (PFGE) of *Not*I or *Xba*I DNA digests. The isolate from C's well was, however, *virF*$^{-}$*inv*$^{+}$ and had a PFGE pattern different from the isolate from C. This may indicate the bacterial contamination of the region from multiple sources, probably from wild animals. Actually, *Y. pseudotuberculosis* 2a was isolated from a well nearby (T). The season was rainy and the overflow from the T river appeared to have contaminated the wells in this area.

We were unable to isolate the pathogens from water collected from the river downstream of the patients' residences or from the well located closer to the seashore (K), or that located near C's house (S), however.

*Corresponding author: Fax:+81-87-825-0408

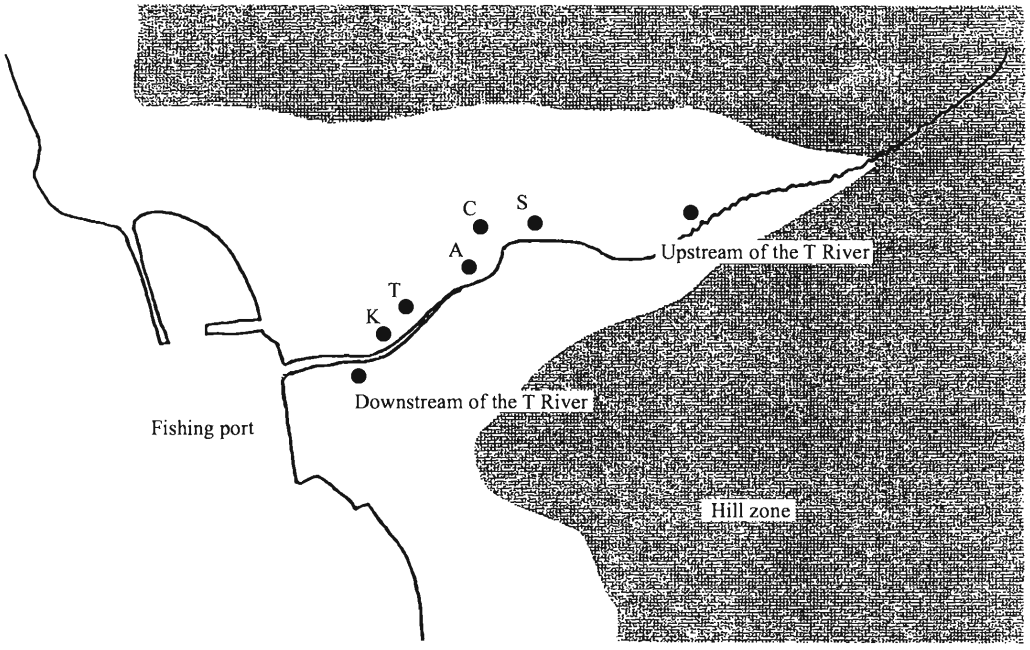


Figure. Geographical distribution of patients' residences and sites from which water was collected for bacteriological examination. Patient B's residence was in the same town, but the outside of this map area.

## REFERENCES

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